# MINERALS SEPARATION, LIMITED, ET AL. v. BUTTE & SUPERIOR MINING COMPANY, DESIGNATED AS BUTTE & SUPERIOR COPPER COMPANY, LIMITED.

CERTIORARI TO THE CIRCUIT COURT OF APPEALS FOR THE NINTH CIRCUIT.

No. 599. Argued March 19, 1919.—Decided June 2, 1919.

Patent No. 835,120, for improvements in the process of concentrating ores, by means of oils, etc., sustained as to claims Nos. 1, 2, 3, 4 and 12. P. 339. *Minerals Separation, Ltd.*, v. *Hyde*, 242 U. S. 261, approved.

These claims, as now and heretofore upheld by this court, cover the use, in the process, of the oils of the patent in amounts equal to any fraction of one per cent. on the ore. P. 341.

The oils contemplated by the patent include not only pine oil and other oils referred to in the testimony, but not in the patent, as "frothing oils," but also the petroleum products kerosene and fuel oil, which though less efficient are useful in the patented process. P. 344.

Therefore, the use in the process of a combination of pine oil, kerosene and fuel oil in an aggregate amount exceeding the maximum percentage of oil fixed by the claims, *supra*, does not infringe the patent, even though the pine oil used is less than that percentage and would have produced more efficient results if used alone. P. 345.

In respect of the oils to be employed, the patent discloses that when those having "a preferential affinity for metalliferous matter" are used, in quantities amounting to a fraction of one per cent. on the ore, in the manner prescribed, including agitation of the mixture of oil, water and ore, there will be produced a metal-bearing froth, the result of the process; a preliminary test is stated to be necessary to determine "which oily substance yields the proportion of froth or scum desired," but no specific distinction is made among oils of the requisite "preferential affinity"; and it is not "particularly pointed out" in the claims that some may be more useful than others, that some may be successfully used and some not, or that some are "frothing oils" and some are not. *Held*, that to confine the patent by construction to the oils which will in practice produce the desired froth would subordinate the clear description of the claims to an implied and vague description which would leave the whole subject at large to become a field for further experiment, and might cause the claims to fall short of satisfying the patent law. P. 349.

When an inventor comes late into a field, already well developed and approaching more and more nearly to the results achieved by his invention, the patent should be construed strictly but fairly, so as to allow all and no more than the benefit of the discovery which it discloses to the public. P. 345.

The invention must be particularly pointed out and distinctly claimed; the patent cannot be extended beyond the claims, or construed in a manner different from the plain import of their terms. P. 347.

The result of a process, (in this case the metal-bearing froth) is not patentable, but only the means disclosed for achieving it. P. 349.

Evidence that respondent's process was inefficient and wasteful as compared with that of petitioner's patent is pertinent to the question of infringement. P. 353.

A disclaimer, filed under Rev. Stats., §§ 4917, 4922, *held*, not evasive, and, in view of the foreign residence of the patent owners and the difficulty of communication during the War, not "unreasonably neglected or delayed." P. 354.

250 Fed. Rep. 241, reversed in part and affirmed in part.

THE case is stated in the opinion.

*Mr. Henry D. Williams* and *Mr. Wm. Houston Kenyon*, with whom *Mr. Lindley M. Garrison*, *Mr. Frederic D. McKenney*, *Mr. Garret W. McEnerney* and *Mr. Odell W. McConnell* were on the briefs, for petitioners.

*Mr. J. Edgar Bull*, with whom *Mr. Thomas F. Sheridan*, *Mr. Frederick P. Fish*, *Mr. Thomas L. Chadbourne*, *Mr. Kurnal R. Babbitt* and *Mr. J. Bruce Kremer* were on the brief, for respondent.

MR. JUSTICE CLARKE delivered the opinion of the court.

This is a suit by the Minerals Separation, Limited, et al., plaintiffs below and petitioners in this court, against the Butte & Superior Mining Company, defendant below and respondent here, to recover for infringement of United States patent No. 835,120, applied for May 29, 1905, and issued November 6, 1906, the validity of which was sustained by this court in *Minerals Separation, Limited*, v. *Hyde*, 242 U. S. 261.

The patent has been so frequently described in court proceedings,[1] that it will suffice to say of it here, in the

[1] *British Ore Concentration Syndicate, Ltd.*, v. *Minerals Separation, Ltd.*, 25 R. P. C. 741.

*Minerals Separation, Ltd.*, v. *British Ore Concentration Syndicate, Ltd.*, 27 R. P. C. 33.

*Ore Concentration Company, Ltd.*, v. *Sulphide Corporation, Ltd.*, Supreme Court, New South Wales, 31 R. P. C. 216, 217.

*Ore Concentration Company, Ltd.*, v. *Sulphide Corporation*, 31 R. P. C. 206, Privy Council British Empire.

*Minerals Separation, Ltd.*, v. *Hyde*, 207 Fed. Rep. 956, (D. C. Montana).

*Hyde* v. *Minerals Separation, Ltd.*, 214 Fed. Rep. 100, (C. C. A. 9th Circuit).

*Minerals Separation, Ltd.*, v. *Miami Copper Co.*, 237 Fed. Rep. 609, (D. C. Delaware).

*Miami Copper Co.* v. *Minerals Separation, Ltd.*, 244 Fed. Rep. 752, (C. C. A. 3rd Circuit, including dissenting opinion of Judge Buffington, p. 775).

terms of the specification, that it "relates to improvements in the concentration of ores, the object being to separate metalliferous matter, graphite, and the like, from gangue by means of oils, fatty acids, or other substances which have a preferential affinity for metalliferous matter over gangue."

The patent contains thirteen claims, which, for the purposes of this opinion, may be conveniently grouped as follows:

(1) Numbers 1, 2, 3, 4 and 12, as "fraction of one per cent. claims," because they call for the use of that amount of oil on the ore; (2) Numbers 5, 6, 7, 8 and 13, as "oleic acid claims," because they are limited to the use of oleic acid in a small fraction of one per cent. on the ore,—0.02–0.5 per cent.; (3) Numbers 9, 10 and 11, as "small quantity of oil claims," all three of which were held invalid by the former decision of this court. Only the five "fraction of one per cent. claims," are involved in this case.

The respondent denied the validity of the patent and the claim of infringement.

The lower courts followed the decision by this court and sustained the patent except as to the three "small quantity of oil claims."

The new evidence introduced on the validity issue is meager in amount, and of a character so unsatisfying that we see no reason for modifying our former conclusion.

The chief controversy in the case centers about the claim of infringement based upon the use of oil by the respondent in excess of one per cent. on, (of the weight of), the ore, after the decision of the former case by this court.

The evidence shows, and counsel now admit, that prior to the decision by this court in December, 1916, the respondent used, in its ore concentration operations, various oils in quantities less than one-half of one per cent. on the ore, but that from January 9, 1917, to the time of trial, with the exception of two or three weeks,

it used oils of a composition which we shall discuss later on, in quantities in excess of one per cent. on the ore. In other respects its methods were substantially those of the patent in suit.

On this showing, the District Court found the patent infringed by the respondent, when it used oil in quantities greater than, as well as when it used it in quantities less than, one per cent. on the ore.

The Circuit Court of Appeals held the patent infringed only when the respondent used oil in quantities equal to, or less than, one-half of one per cent. on the ore, and it therefore reversed both of the holdings of the District Court, but allowed recovery for the period when less than one-half of one per cent. of oil on the ore was used.

The Circuit Court of Appeals derived its authority to limit the claims to one-half of one per cent. on the ore from the construction which it placed upon the following clause of the opinion of this court in the former case, viz:

"The patent must be confined to the results obtained by the use of oil within the proportions often described in the testimony and in the claims of the patent as 'critical proportions,' 'amounting to a fraction of one per cent. on the ore.'"

The reasoning which carried two members of the court to their conclusion was, that, as shown by the evidence of the patentees and the argument of their counsel, the amount of oil which is "critical," in the sense of marking the point of transition from the processes of the prior art to the process and discovery of the patent, is one-half of one per cent. of oil on the ore, and that therefore this court, by using the expression quoted, intended to limit the claims, not to a "fraction of one per cent." but to a "fraction of one-half of one per cent. on the ore."

The specification of the patent points out that the proportion of mineral which floats in the form of froth varies with different ores and with different oily substances

used and that simple preliminary tests are necessary to determine which oily substance will yield the best results with each ore. Of this feature of the patent this court said:

"Such variation of treatment must be within the scope of the claims, and the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter. . . . The process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows. This satisfies the law."

Thus was it plainly held proper for the patentees to claim a reasonable degree of variation—"within the scope of the claims"—in the amount of oil to be used in the application of their discovery in practice, and that the restricting of the amount to a fraction of one per cent. on the ore was reasonable and lawful.

The two expressions "critical proportions" and "amounting to a fraction of one per cent. on the ore" being used, the former derived from the evidence and the latter from the claims of the patent, obviously, to the extent that they differ—if they differ at all—the language of the claims must rule in determining the rights of the patentees.

While in the former case this court was not called upon, and in its opinion did not attempt, to define the scope of the claims, but was considering the patent only from the point of view of the invention and usefulness of the claimed discovery, nevertheless, the language quoted seems to indicate clearly enough that the opinion of the court then was, as it is declared now to be, that as to the claims here involved the patent extends to and covers the use in the process of oils of the patent, in amounts

equal to any fraction of one per cent. on the ore. The oleic acid claims are in terms limited to 0.02–0.5 per cent. on the ore. The Circuit Court of Appeals fell into error in the interpretation which it placed upon our opinion and its judgment in this respect is reversed.

Since the case must be retried, there remains to be considered the reversal by the Circuit Court of Appeals of the holding by the District Court that the use of oil by the respondent in excess of one per cent. on the ore constituted an infringement of the patent.

As we have said, prior to the former decision by this court, the respondent used in its ore concentration process less than one-half of one per cent. of oil on the ore, and as to such practice infringement is clear, but from January 9th, 1917, to the time of trial, with slight exceptions, it used in excess of one per cent. on the ore, and it is necessary to consider only the operations during this latter period. The oil used during this period was a compound, varying in composition from time to time, but we agree with the District Court in selecting as typical a mixture made up of 18 per cent. of pine oil, and the remainder of petroleum products or derivatives—12 per cent. of kerosene oil, and 70 per cent. of fuel oil. Of this compound there was used 30 pounds to the ton of ore, which would be 1.5 per cent. on the ore. As thus stated, without more, it is obvious that the use of such an amount of oil would not infringe the claims of the patent which limit the oil to be used to a fraction of one per cent. on the ore.

But the contention of the petitioners, approved by the District Court, was, and now is, that kerosene and fuel oil were inert and valueless, if not harmful, as used by the respondent in the process and rendered the recovery less than it would have been if the pine oil only had been used; that they were added solely to carry the content of oil beyond the prescribed fraction of one per

cent. on the ore, in the hope of technically avoiding infringement; and that essentially in its operations the respondent used the process of the patent with .27 of one per cent. of pine oil on the ore, and therefore infringed it.

The respondent replied that it was not true that kerosene and fuel oil were inert and useless, and asserted that they were oils of the patent, "having a preferential affinity for metalliferous matter;" that the patentees by the claims of their patent had limited their exclusive right to the use, in the process, of any oil or oily substance having such an affinity, but in an amount not greater than a fraction of one per cent. on the ore, and that, therefore, the process of the respondent, in which more than one per cent. of oil on the ore was used, did not infringe the patent.

The entire evidence in the *Hyde Case* was introduced on the trial of this case, and whether the petroleum products or derivatives used by the respondent were oils within the scope of the patent must be determined from the record now before us.

It is admitted that petroleum products are "oils having a preferential affinity for metalliferous matter."

In each of the four claims of the "Complete Specification" of the British patent, filed by the same persons who were patentees of the patent in suit, on June 3, 1905, "petrol" is given as an equivalent of oleic acid in the process. This appears in the statement, repeated in each claim, that the ore and acidified water shall be mixed or agitated with "a small proportion of an oily substance such as oleic acid or petrol, amounting to a fraction of one per cent. on the ore." "Petrol" is the name used in England for gasoline.

The claims of the patent in suit which we are considering call for the use in the process of an "oily liquid," "an oily substance," and in the twelfth claim simply of an "oil." These expressions are said by Professor Chandler,

an expert for the petitioners, much relied on in the *Hyde Case* and in this, to include petroleum products.

Higgins, one of the experimenters who discovered the process in suit, and who is much relied upon by the petitioners as an expert witness in both cases, testified as follows in the *Hyde Case*:

"Q. Have you since found it possible to use other oils than oleic acid with the result of producing a froth?

"A. Yes.

"Q. What other oils?

"A. I have obtained satisfactory results by the use of petrol, certain portions of the distillate of crude petroleum, such as Cosmos oil,"

and he said "Cosmos oil" is "a petroleum distillate."

Chapman, an engineer and a witness for the petitioners in the *Hyde Case*, testified that he had obtained good recoveries in the laboratory and in commercial practice, from the ore of the Braden mine, in Chile, using three pounds of Texas fuel oil to one pound of American wood tar oil per ton of ore. Texas fuel oil is petroleum.

Greninger, an engineer employed by one of the petitioners in installing its flotation plants, testified in this case that in a mine in British Columbia he used a mixture of oil, 75% of which was derived from petroleum.

There is much more of the same character from witnesses for the petitioners and the evidence of the respondent is strongly to the effect that petroleum products are useful and efficient and have been widely used in the process in laboratory and commercial practice.

Without quoting more from the record before us, we must conclude that when the patent in suit was obtained, and even until the testimony in the *Hyde Case* was closed in 1912, petroleum products were recognized by the petitioners, and that they are still used, as oils, efficient, and useful in the process of the patent in suit. Much of this evidence is especially impressive because the papers from

which it is derived were written and the witnesses testified before the question as to petroleum, now made in this case, was raised or discussed.

While we thus conclude that petroleum and petroleum products are oils useful in this process of the patent, it is also clear that they are not as highly efficient as pine oil and several other oils and combinations of oils, which, in the nomenclature of the record are called "frothing oils," and also that better results would probably have been obtained by the use of less than one per cent. on the ore, of pine oil alone, than were obtained by the respondent with that oil in combination with the larger amounts of petroleum products. And this presents the further question necessary to a decision of the case, viz:

Does the use of a more efficient, in combination with a less efficient, oil of the patent, constitute infringement, where the former is used in an amount within the limits of the claims but the combined amount is in excess of such limit, and when the amount of the more efficient oil used would probably produce better results from the process than are produced with the combination of oils?

To answer this question requires a consideration of the state of the prior art as it was when the discovery of the patent was made, and of the scope of the claims which we are considering.

It is always difficult to recover the realities of a situation long past, such as we have here, but it is especially difficult when the importance of the discovery has led, as in this case, to extensive improvements in mechanical appliances for utilizing the invention and to large additions to the knowledge of the adaptability to the process of various oils, singly and in combination.

We held in the former case that the patentees came late into the field of ore concentration investigation and that their discovery rests upon a prior art so fully developed that it was "clear from the record that approach was

being made, slowly, but more and more nearly to the result which was reached by the patentees of the process in suit in March, 1905," and that their final step was not a long one.

Such a patent, in such a field of investigation, must be construed strictly, but candidly and fairly, to give to the patentees the full benefit, but not more, of the disclosure of their discovery which is to become a part of the public stock of knowledge upon the expiration of the patent period, and which was the consideration for the grant to them of a patent monopoly.

With the state of the prior art in mind, we come to consider the nature and extent of the disclosures of the patent in suit, but only with respect to the kinds and quantities of oil which may be used in the process.

The specification recites that the invention of the patent relates to an "improvement" upon prior processes employed in ore concentration "by means of oils, fatty acids, or other substances which have a preferential affinity for metalliferous matter over gangue."

Next come the specific disclosures required by the patent law (Rev. Stats., § 4888), which are intended to describe the advance which the patentees claimed to have made from the prior art Cattermole agglomeration of metalliferous matter into granules, which separate from the gangue, and sink to the bottom of the pulp under treatment, to the discovery of the patent in suit, with its metal bearing froth, rising to the surface of the pulp. Here is the essence of the discovery and it is announced in these terms:

"We have found that if the proportion of oily substance be considerably reduced—say to a fraction of one per cent. on the ore—granulation ceases to take place, and after vigorous agitation there is a tendency for a part of the oil-coated metalliferous matter to rise to the surface of the pulp in the form of a froth or scum."

This is followed by the description of three "factors" on which "this tendency is dependent," viz: slight acidification, heat, and fine pulverization of the ore, and then the disclosure concludes with the statement that the proportion of mineral which floats in the form of froth varies with different ores and with different oily substances, and that a simple preliminary test is necessary to determine which oily substance yields the proportion of froth or scum desired.

The only additional statement contained in the specification, which is in the nature of a disclosure, is found in the description of the example of the application of the invention, in which it is stated that the "froth or scum" derives its power of flotation mainly from the inclusion of air-bubbles introduced into the mass by agitation, such bubbles or air-films adhering only to the mineral particles which are coated with oleic acid.

There remain the claims of the patent, in which the act of Congress requires that the patentee shall "particularly point out and distinctly claim the . . . improvement . . . which he claims as his invention or discovery." And of these this court has said in *Keystone Bridge Co.* v. *Phœnix Iron Co.*, 95 U. S. 274, 278:

"But the courts have no right to enlarge a patent beyond the scope of its claim as allowed by the Patent Office. . . . As patents are procured *ex parte*, the public is not bound by them, but the patentees are. And the latter cannot show that their invention is broader than the terms of their claim; or, if broader, they must be held to have surrendered the surplus to the public."

And in *White* v. *Dunbar*, 119 U. S. 47, 52:

"The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms."

And see *Motion Picture Patents Co.* v. *Universal Film Co.*, 243 U. S. 502, 510.

Since we are concerned only with the five "fraction of one per cent. claims," and since the question we are discussing relates only to the use of petroleum products, we need consider them only with respect to the amount and character of the oil prescribed, and, as they are substantially identical, we quote the first as typical:

"The herein-described process of concentrating ores which consists in mixing powdered ore with water, adding a small proportion of oily liquid having a preferential affinity for metalliferous matter, (amounting to a fraction of one per cent. on the ore), agitating the mixture until the oil-coated mineral matter forms into a froth, and separating the froth from the remainder by flotation."

The first three claims declare that, so far as oil is concerned, the discovery resides or consists in "adding a small proportion of an oily liquid having a preferential affinity for metalliferous matter, (amounting to a fraction of one per cent. on the ore);" the fourth claim differs only in substituting the word "substance" for "liquid" in the first three; and the twelfth claim provides for carrying out the process with "oil in water containing a fraction of one per cent. of oil on the ore."

From this consideration of the terms of the patent as written, it is apparent that it makes no differentiation whatever, either in the claims or in the specification, among the oils having a preferential affinity for metalliferous matter, and that its disclosure, to which the petitioners must be limited, is, that when a fraction of one per cent. on the ore of any such oil is used in the manner prescribed, there will be produced a metal-bearing froth, the result of the process. No notice is given to the public, and it is nowhere "particularly pointed out" in the claims, that some oils or combination of oils, having a preferential affinity for metalliferous matter, are more

useful than others in the process, or that some may be used successfully and some not, or that some are "frothing oils," a designation not appearing in the patent, and that some are not. The patentees discovered the described process for producing the result or effect, the metal-bearing forth, but they did not invent that result or froth, —their patent is on the process, it is not and cannot be on the result,—and the scope of their right is limited to the means they have devised and described as constituting the process. *Corning* v. *Burden*, 15 How. 252, 268; *LeRoy* v. *Tatham*, 14 How. 156, 175; *Fuller* v. *Yentzer*, 94 U. S. 288; Robinson on Patents, § 149.

The patent in suit was applied for in this country on May 29, 1905, within a few weeks after the discovery which it embodies was made, and whether, from haste or lack of investigation, from the necessity of meeting the exigencies imposed by the prior art or from a desire to make the claims as comprehensive as possible, this discussion of its terms makes it clear, that the only disclosure as to the kind and amount of oil which the patentees made to the public as necessary to the practicing of their process is that it must be an oil or oily substance, or oily liquid having a "preferential affinity for metalliferous matter," and that it shall be limited in amount "to a fraction of one per cent. on the ore."

It is argued that the provision of the claims that the mixture prescribed, of oil, water and ore, shall be agitated until the oil-coated mineral matter forms into a froth, serves to differentiate the "frothing oils" from others having the required preferential affinity for metalliferous matter but which, when agitated in the mixtures, may not produce the characteristic froth, if any such there are, and that a proper construction of the patent limits it to such "frothing oils" and renders the use of them in a fraction of one per cent. on the ore an infringement when used with "non-frothing oils" having the required affinity in

amounts sufficient to make the combination exceed the quantity limit of the patent.

To give such a construction to the patent would subordinate the clear description contained in it of what are oils of the process, to an implied and vague description and classification which would leave the whole subject again at large, to become a field for further experimentation, without definition in the patent of what oils or froths would satisfy it. So interpreted the patent could not reasonably be said to contain a disclosure of the discovered process in the "full, clear, concise, and exact terms" required by law (Rev. Stats., § 4888) and the claims might conceivably be said to fall short of "particularly pointing out and distinctly claiming" any discovery at all within the meaning of the act of Congress.

Thus when to our former conclusion that the respondent used an efficient oil of the patent, we add the further conclusion, derived from a study of its terms, that the patentees failed to differentiate among the oils described in the patent, we must conclude that it is impossible for the courts to distinguish among them, as more or less efficient in the process, without amending the claims of the patent, and this they are powerless to do.

We are confirmed in the conclusion thus arrived at by the evidence which the patentees in the *Hyde Case*, petitioners in this, introduced to show that their discovered process could not be made operative when more than a fraction of one per cent. of oil on the ore was used, and that the use of a greater amount would not produce the typical froth which results from it,—this without differentiation among the oils described in the patent, save as to their varying adaptability to different ores.

Thus, Ballantyne, a metallurgist and the patent agent who prepared the patent specifications for the petitioners, when called by them as an expert witness, testifies to intimate relations with the patentees and with their in-

vestigations before and since the patented discovery was made, and says:

"I have never seen the agitation-froth process successfully carried out by the use of an amount of oil equal to practically one per cent. by weight on the ore, and in my opinion 0.9999 per cent. of oil would not be a proper quantity (that is to say it would not be a suitable and economical quantity), as contemplated by the patent, and would not, therefore, be a suitable fraction of one per cent., as contemplated by the patent."

Liebmann, an expert much relied upon by the petitioners, testified:

"Q. I understand from your answer . . . that you have never, in your operations, . . . obtained any floating mineral-bearing froth when using an amount of oil or other selective agents amounting to more than one per cent. by weight of the ore. In order that there may be no misunderstanding, will you state whether I have understood you rightly?

"A. That is my recollection."

John Ballot, one of the patentees, testified that he had never seen a froth of the character produced by the patent in suit using a pulp containing more than one per cent. of oil.

There is much more of similar import in the record. This, however, will suffice, adding only the record of a remarkable incident which occurred in this court during the argument of the *Hyde Case* by Mr. Kenyon for the petitioners:

"Mr. Justice McReynolds: I would like to ask you when in this process of reducing oil your invention came into existence?

"Mr. Kenyon: At about one-half of one per cent. of oil.

"Mr. Justice McReynolds: Before you got to the one-half of one per cent. did you have any invention?

"Mr. Kenyon: We were passing from the region of Cattermole, which was a distinct—

"Mr. Justice McReynolds: I want to know when your invention came into existence?

"Mr. Kenyon: This invention was not reached, I should say, from those figures, until about .5, that is one-half of one per cent. of oil was reached.

"Mr. Justice McReynolds: At one per cent. you had no invention?

"Mr. Kenyon: No.

"Mr. Justice McReynolds: At one-half of one per cent. you did have invention?

"Mr. Kenyon: It began to come. Remote, but it began to come. At .3 of one per cent. the float vastly increased. At .1 of one per cent. the float again vastly increased.

"Mr. Justice McReynolds: When this float has more than one-half of one per cent. of oil it does not infringe?

"Mr. Kenyon: It does not infringe.

"Mr. Justice Pitney: What have you to say in answer to what Mr. Scott said the other day to the effect that 1.8 per cent., or perhaps more, of oil, would give the same result with increased agitation?

"Mr. Williams: Absolutely no.

"Mr. Kenyon: It would not."

While parties should not be held rigidly to statements made by their counsel in the stress of argument, even when replying to questions from members of the court, nevertheless these statements from leading counsel in charge of the *Hyde Case* and of this case, are impressive and significant.

This and much more of like character in the record brings us unhesitatingly to the conclusion that the scope we have given to the patent, based upon an interpretation of the language of the claims, is justified also by the evidence in the case and that it is, in fact, that which the petitioners and their counsel, until very recently, placed

upon it in full confidence, that the essence of the discovery lay to such an extent in the use of a small amount of oil, such as is described in the patent, that the result could not be obtained with more than a fraction of one per cent. on the ore.

It must be added that the evidence is far from satisfying that the results of the respondent's process was, in fact, that peculiarly superior quality of metal-bearing froth characteristic of the patented process when worked with a fraction of one per cent. on the ore. The evidence, otherwise doubtful on the point, is rendered especially so by the testimony introduced by the petitioners, and not contradicted, that a computation on the basis of the tonnage of ore treated by the respondent shows that if the process as practiced by it after January 9, 1917, had been used through the year it would have involved a loss of over a million dollars in increased cost of oil and in diminished recoveries, as compared with what the results of operation would have been for the same time using the process of the patent as practiced by the petitioners. It is difficult to see how a process so wasteful and inefficient as that of the respondent is thus proved to be can be other than substantially different from that of the petitioners.

It is vaguely suggested in the testimony for the petitioners that there was some peculiarity in the composition of the ore of the respondent, or in the treatment of it, which resulted in the presence of "clayey gangue slimes" which absorbed an unusual quantity of oil and that this contributed to render it possible to produce the results of the patented process when more than the prescribed fraction of one per cent. of oil on the ore was used.

It is hard to see how this, if true, would be of value to the petitioners, but the evidence is quite too indefinite in character and meagre in extent to be accepted as the basis for the judicial determination of such a claim.

The respondent contends that the disclaimer filed by

the petitioners with respect to the three claims held invalid by the decision of this court in the former case, was so delayed and is so evasive in form that it is invalid and that, for this reason, the petitioners should not be permitted to further prosecute this suit, under the provisions of Rev. Stats., §§ 4917, 4922.

The decision holding the three claims invalid was rendered on December 11th, 1916, and the disclaimer was recorded on the 28th day of March, 1917. Having regard to the fact that the owners of the patent in suit resided in a foreign country, and to the war-time conditions of communication then prevailing, the entry required by law was not "unreasonably neglected or delayed." While the wording of the disclaimer borders on finesse, we do not think it can be interpreted as giving any rights under the patent greater than may be legitimately obtained under the claims held valid, and we therefore deem it sufficient to meet the requirements of the statutes cited.

It results that the decree of the Circuit Court of Appeals that the respondent infringed the patent only when using one-half of one per cent. or less of oil on the ore must be reversed, but that its implied holding that the use made by respondent of petroleum products and pine oil in excess of one per cent. on the ore did not constitute infringement must be sustained. The cause is remanded to the District Court for further proceedings in conformity with this opinion.

*Reversed in part.*